

Serial No10/063,754

RD-29,414-1

Amendments to the Claims:

1. (Currently amended) A fused quartz article, said fused quartz article comprising:

a) a body, said body comprising fused quartz; and

b) a coating disposed on an exposed surface of said body, said coating comprising a plurality of metal cations, each having a valence of less than 4, wherein said plurality of metal cations comprises cations of at least one of an alkali metal, an alkaline earth metal, a rare earth metal, and combinations thereof, wherein said plurality of metal cations is present within said coating in a concentration of at least about 0.1 atomic percent, and wherein fused quartz within said body undergoes a transition to a cristobalite crystal structure at a temperature in a range from about 1000°C to about 1600°C, and wherein said fused quartz article is transparent to visible light.

2. (Canceled) ✓

~~2~~ (Original) The fused quartz article according to Claim 1, wherein said fused quartz article is one of a furnace tube and a crucible.

~~3~~ (Original) The fused quartz article according to Claim 1, wherein said fused quartz article is substantially chemically inert with respect to halide gases and acids.

A2 ~~4~~ (Original) The fused quartz article according to Claim 1, wherein said fused quartz article has a melting temperature of at least that of cristobalite.

~~5~~ (Original) The fused quartz article according to Claim 1, wherein said coating has a thickness from about 50 nm to about 5 microns.

~~6~~ (Original) The fused quartz article according to Claim ⁵~~6~~, wherein said coating has a thickness from about 500 nm to about 5 microns.

~~7~~ (Original) The fused quartz article according to Claim ⁶~~7~~, wherein said coating has a thickness from about 2 microns to about 5 microns.

Serial No10/063,754

RD-29,414-1

8 ~~9~~ (Original) The fused quartz article according to Claim 1, wherein said plurality of cations comprises cations of at least one of barium, calcium, strontium, and combinations thereof.

9 ~~10~~ (Original) The fused quartz article according to Claim 1, wherein said at least one metal cation is present within said coating in a concentration of at least about 0.5 atomic percent.

10 ~~11~~ (Original) The fused quartz article according to Claim ~~10~~ ⁹, wherein said at least one metal cation is present within said coating in a concentration from about 4 atomic percent to about 10 atomic percent.

11 ~~12~~ (Currently amended) An outer coating for a fused quartz article, said outer coating comprising a plurality of metal cations, wherein said plurality of metal cations comprises cations of at least one of barium, calcium, strontium, and combinations thereof, and wherein said plurality of metal cations is present within said coating in a concentration of at least about 0.1 atomic percent, ~~and~~ wherein said plurality of cations catalyzes a transition of fused quartz within said fused quartz article to a cristobalite crystal structure at a temperature in a range from about 1000°C to about 1600°C, and wherein said fused quartz article is transparent to visible light.

A7
13. (Canceled) ✓

12 ~~14~~ (Original) The outer coating according to Claim ~~12~~ ¹¹ wherein said outer coating has a thickness from 50 nm to about 5 microns.

13 ~~15~~ (Original) The outer coating according to Claim ~~14~~ ¹² wherein said outer coating has a thickness from 500 nm to about 5 microns.

14 ~~16~~ (Original) The outer coating according to Claim ~~15~~ ¹³ wherein said outer coating has a thickness from about 2 microns to about 5 microns.

15 ~~17~~ (Original) The outer coating according to Claim ~~16~~ ¹⁴ wherein said at least one metal cation is present within said coating in a concentration of at least about 0.5 atomic percent.

Serial No10/063,754

RD-29,414-1

16 ~~18~~ (Original) The outer coating according to Claim ~~17~~¹⁵, wherein said least plurality of metal cations is present within said outer coating in a concentration of from about 4 atomic percent to about 10 atomic percent.

17 ~~19~~ (Original) A fused quartz article, said fused quartz article comprising:

- a) a body, said body comprising fused quartz; and
- b) an outer coating disposed on an exposed surface of said body, said outer coating comprising a plurality of metal cations, wherein said plurality of metal cations comprises cations of at least one of barium, calcium, strontium, and combinations thereof, wherein said plurality of metal cations is present within said coating in a concentration of at least about 0.1 atomic percent, wherein said plurality of cations catalyzes a transition of fused quartz within said body to a cristobalite crystal structure at a temperature a temperature in a range from about 1000°C to about 1600°C, and wherein said fused quartz article is transparent to visible light.

18 ~~20~~ (Original) The fused quartz article according to Claim ~~19~~¹⁷, wherein said fused quartz article is one of a furnace tube and a crucible.

19 ~~21~~ (Original) The fused quartz article according to Claim ~~19~~¹⁷, wherein said fused quartz article is substantially chemically inert with respect to halide gases and acids.

20 ~~22~~ (Original) The fused quartz article according to Claim ~~19~~¹⁷, wherein said fused quartz article has a melting temperature of at least that of cristobalite.

21 ~~23~~ (Original) The fused quartz article according to Claim ~~19~~¹⁷, wherein said outer coating has a thickness from about 50 nm to about 5 microns.

22 ~~24~~ (Original) The fused quartz article according to Claim ~~23~~²¹, wherein said outer coating has a thickness from about 500 nm to about 5 microns.

23 ~~25~~ (Original) The fused quartz article according to Claim ~~24~~²², wherein said outer coating has a thickness from about 2 microns to about 5 microns.

Serial No10/063,754

RD-29,414-1

~~24~~ 26. (Original) The fused quartz article according to Claim ~~19~~, wherein said at least one metal cation is present within said coating in a concentration of at least about 0.5 atomic percent.

~~25~~ 27. (Original) The fused quartz article according to Claim ~~26~~, wherein said wherein said plurality of metal cations is present within said outer coating in a concentration from about 4 atomic percent to about 10 atomic percent.

28-56. (Withdrawn) #
